



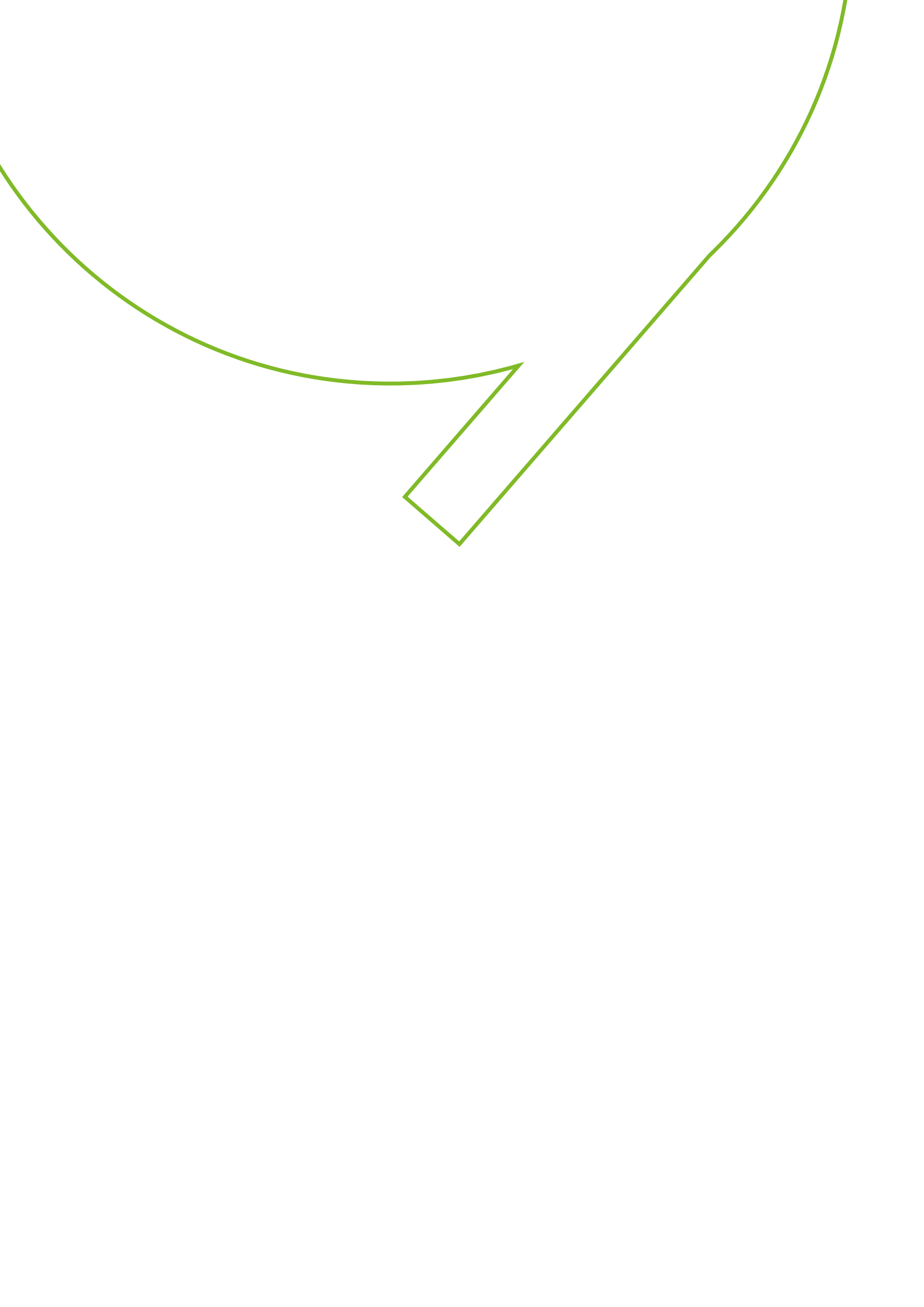
Life.
Science.



SOLUTION PAPER —

Peace of Mind.

Proteus®ONE



Key insights in this Solution Paper

Proton therapy is an advanced form of radiotherapy. Its precision helps reduce side effects and improve patients' quality of life during and after cancer treatment^{1,2,3}. It is **a sophisticated technology, which requires an experienced partner and the right level of support to obtain its full benefits.**

IBA has been dedicated to proton therapy for over 30 years and is the worldwide market leader. We have unrivalled expertise, the largest and longest operational and clinical experience, the biggest installed base as well as the most patients treated on our Proteus platform. In other words, IBA has installed and brought into clinical operations more proton therapy rooms than any other provider on the market.

When choosing IBA for your proton therapy project, you have a true partner by your side committed to your project success, at every step of the way and throughout your equipment lifecycle.

We work hand in hand with your teams and all stakeholders to ensure your objectives are met and maximize your investment. Collaboration, trust, and transparency are part of our DNA.

IBA has also demonstrated its technological leadership in the development of proton therapy tools, techniques, and product features. We understand the challenges of clinical treatment and have designed our solutions to optimize the overall treatment quality for each specific proton therapy case.

With IBA, you can have the peace of mind that your proton therapy center will deliver best-in-class patient care, with optimal performance.

Discover how we support our clients at every step of their journey, from project design to daily operations and beyond, helping them master complexity with confidence.

In this Solution Paper, learn:

- How to select the best partner for your proton therapy journey
- What the critical milestones to launch a proton therapy center are & how you can trust that your partner will deliver on agreed timelines
- Why you must ensure your partner will continue focusing on new innovations and enable you to upgrade your proton therapy platform in the future



This Solution Paper is primarily intended for

- Hospital Executives
- Operation Managers
- Medical Physicists
- Heads of Radiotherapy Departments



北醫質子中心

TMU PROTON CENTER

Iba



Table of contents

IBA AT A GLANCE	6
How we make a difference	7
What our clients say about us	8
WHAT TO CONSIDER WHEN INITIATING YOUR PROTON THERAPY JOURNEY	8
DESIGN	9
Business support	9
Technical support & pre-installation support	10
DEVELOP	13
Proton therapy system installation	13
User training	14
Clinical commissioning support	15
Patient ramp-up	15
TREAT	16
On-site & remote support	16
Intelligent maintenance	17
Spare parts management	18
System updates	18
The Campus community	19
ESSENTIAL TAKEAWAYS	20
REFERENCES	21
AVAILABLE RESOURCES	22

IBA at a glance* —————

42% of installed proton therapy rooms worldwide are IBA

75 centers
have chosen IBA as their proton therapy solution provider

Helped

132,000+ patients
worldwide with Proteus advanced technology

53% of all patients treated with proton therapy

*September 2023



How we make a difference



EXPERTISE

A team of proton therapy experts with unrivalled experience and a strong track-record supporting you at every step of your journey



FLEXIBILITY

A wide range of options and services to meet your unique needs



RELIABILITY

Products, processes and people you can count on to deliver best-in-class care to your patients



SIMPLICITY

A single point of contact assigned to each technical phase of your project [vault construction, equipment installation & calibration, and clinical operation]



PEER SUPPORT

Campus, a community of users to share learnings and help you advance your practice



COMMITMENT

An unwavering commitment to your project success



What our clients say about us

Our expertise and professionalism are why our clients choose us again and again.

In 2016, the University of Florida Health Proton Therapy Institute, which already had IBA ProteusPLUS equipment, decided to extend its activity by installing an additional proton therapy system. It decided to renew its partnership with IBA acquiring the new ProteusONE system and upgrading its ProteusPLUS proton therapy equipment with IBA's latest technologies. The Institute's team highlighted IBA's "*professional support and responsiveness*" as a key decision driver.

In 2021, the Korea National Cancer Center (KNCC) also set out to complement the IBA ProteusPLUS system already in operation with a ProteusONE solution.



The commitment, professional support and responsiveness that IBA has demonstrated throughout our 14 years of collaboration has resulted in the successful treatment of many patients with proton therapy.



DR HONG GWAN SEO

President

Korea National Cancer Center (KNCC), Goyang, Korea

What to consider when initiating your proton therapy journey —

As you set out on your proton therapy journey, there are three important phases to consider:

- **Design:** Project design & building construction
- **Develop:** Proton therapy system installation, clinical commissioning & ramp-up
- **Treat:** Clinical operations & lifecycle management



Unlike an MRI scanner, a proton therapy center is not an off-the-shelf technology. In order to build one, it is important to work with a company that has a proven installation track record. Partnering with IBA, possessing extensive experience in setting-up centers, has definitely benefited our ramp-up time.



BERT-JAN SOUMAN

Managing Director

Proton Therapy Center Groningen (PTCG), Netherlands

Design ---

Business support

Many institutions are considering the addition of a proton therapy system to their new cancer center or existing radiation oncology department. They are often challenged by the complexity of planning and starting a proton therapy project. Taking this into account, it is critical to choose the right partner that can assist in different stages of project development. IBA is uniquely positioned to partner with you throughout your project and help make it a success.

Clear identification of your clinical and business objectives will help you define your exact equipment needs in terms of functionalities and scale. Flexibility and adaptability are an important aspect not to overlook when it comes to selecting the most appropriate equipment provider as it will enable the perfect match between your ambitions, your resources, and your equipment configuration.

Creating your business case is a step-by-step process with several iterations. It ensures you consider all factors that should be taken into account during the planning phase and evaluate the CAPEX, OPEX, and revenues. The business plan will also evolve over time during project planning and after certain decisions are made. IBA created a model to allow you to explore your hypothesis and help you design a successful business plan.

For a capital-intensive project of this scale, structuring and securing the optimal financing solution is critical for success. It is essential to assess the available resources for your project as they will have a significant impact on the business plan. IBA can provide you support to build a solid business case, explore funding options, and reassure potential investors and financial institutions that **a secure and financially stable technology partner with a consistent track-record** is part of the project.

IBA supports you throughout the key steps to establish your business plan:



Validating business plan assumptions



Exploring financing options



Searching for financial partners

Technical & pre-installation support

For the building, a complete set of architectural drawings needs to be created based on the center’s design and the product installation requirements. The building team, together with the medical team and/or administrators, will have the opportunity to think about how the building design should be adapted to patient workflow and treatment procedures for maximum efficiency.

IBA leverages its experience to help you make the right choices to meet your needs, for example providing you with standard designs to help you get started and then walking you through all the necessary steps to achieve the ideal layout for your project.

The IBA support team

To ensure that your proton therapy system is delivered on budget and on time, IBA assigns **a dedicated team of four which relies on the whole IBA team to ensure the success of your project from day one.**

PROJECT MANAGER	DESIGN AND CONSTRUCTION COORDINATOR	IBA SITE MANAGER	APPLICATION SPECIALIST
Assigned upon contract signature and until the first patient is treated	Works closely with you and your extended team (architects, facilities, and construction teams) to facilitate a successful installation	Appointed shortly before the delivery of the IBA Proteus system to the site	Trained medical physicist with expertise in proton therapy systems
Is responsible for project management & coordination	Verifies that IBA requirements are taken into account in the construction, through drawing reviews and site surveys	Works in tandem with the Project Manager during the installation phase and during the ongoing operation/maintenance of the system	Defines your team’s training schedule
Works closely with you and your extended team (architects, facilities, and construction teams) to facilitate a successful installation		Assigned to the site as a full-time resource	Helps you select the best software suite and ancillary equipment and, if you choose the highly recommendable option, will support your commissioning activities to ensure a fast start of your center (see page 15)



Facility design

To help with your facility design, **IBA provides a detailed Interface Building Document (IBD) containing a full description and explanation of all IBA requirements for integration into the construction documents prepared by your Architect and Design Team.** Starting from the contract (and often before), IBA regularly exchanges with your team, the architect, design engineers, and consultants through all design stages (basic design, schematic design, and construction design) to ensure that all IBD requirements are fully integrated in the construction documents.

Permitting support

IBA offers permitting support, including providing and reviewing the necessary IBA documentation (e.g. the validation of shielding calculations for radioprotection) for the building permits application.

Construction support

During construction, IBA teams attend Owner-Architect-Contractor (OAC) coordination meetings as well as project meetings, providing status updates of IBA's manufacturing and shipping progress to meet the Building Readiness Date. **Specialized IBA resources are mobilized on-site regularly and at key milestones**, in particular:

- After excavation and before base slab pours to inspect underground plumbing locations and any other site issues
- Before important wall and slab pours (e.g. electrical conduit verification) to inspect all embedded conduits, perform field verification measurements, coordinate and check construction documents as well as any site and field changes, etc.



We had the full support of IBA through construction and commissioning. In addition, the reliability of the machine and the expertise of the on-site team kept the machine running efficiently and enabled us to stay on track with our business plan.



GREG SONNENFELD






Former Cancer Center Director

Willis-Knighton Cancer Center, Shreveport, Louisiana, United States

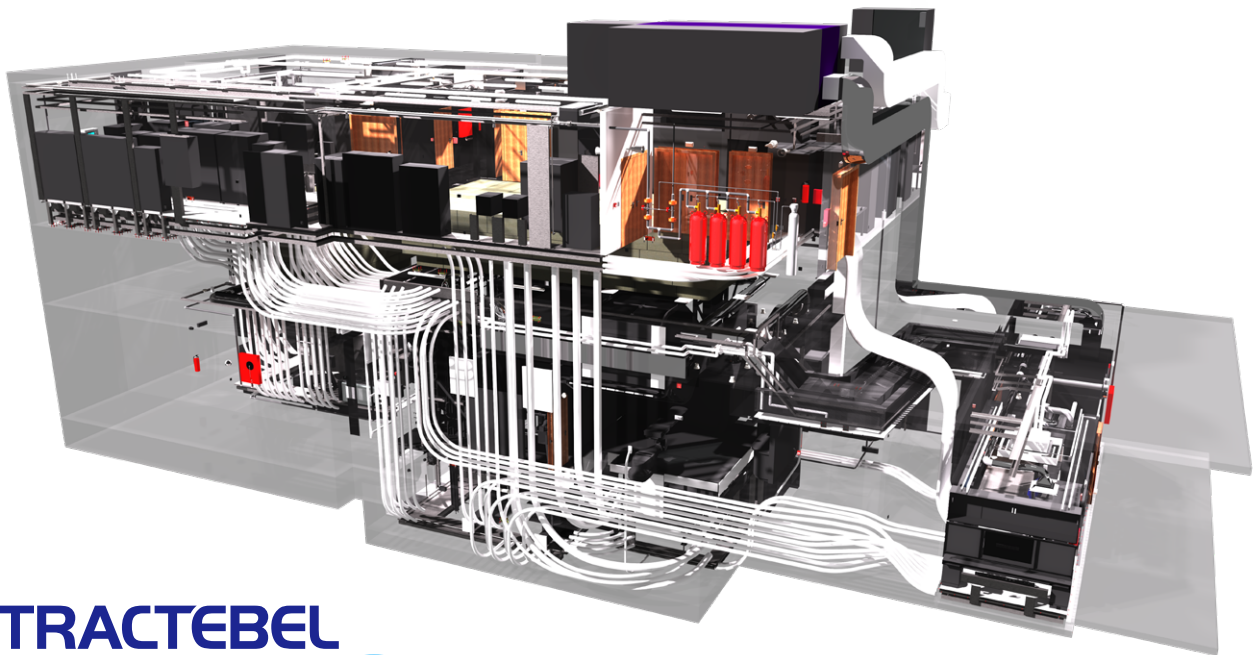
Tractebel, our worldwide engineering partner*

IBA has established a partnership with Tractebel, a global engineering company, which offers the healthcare sector a unique combination of infrastructure, nuclear, and radioprotection skills. It provides a one-stop-shop approach to designing proton therapy facilities while putting sustainability at the center of every decision.

Tractebel provides the following services:

-  Building cost estimation
-  Design services and BIM (civil work, HVAC, electricity, instrumentation & control, systems and processes, mechanical, fire protection)
-  Radioprotection, nuclear safety, and shielding calculation
-  Support during the procurement process
-  Project management, technical coordination & construction follow-up

**Tractebel services are not available in all geographies, please contact your IBA representative for more information.*



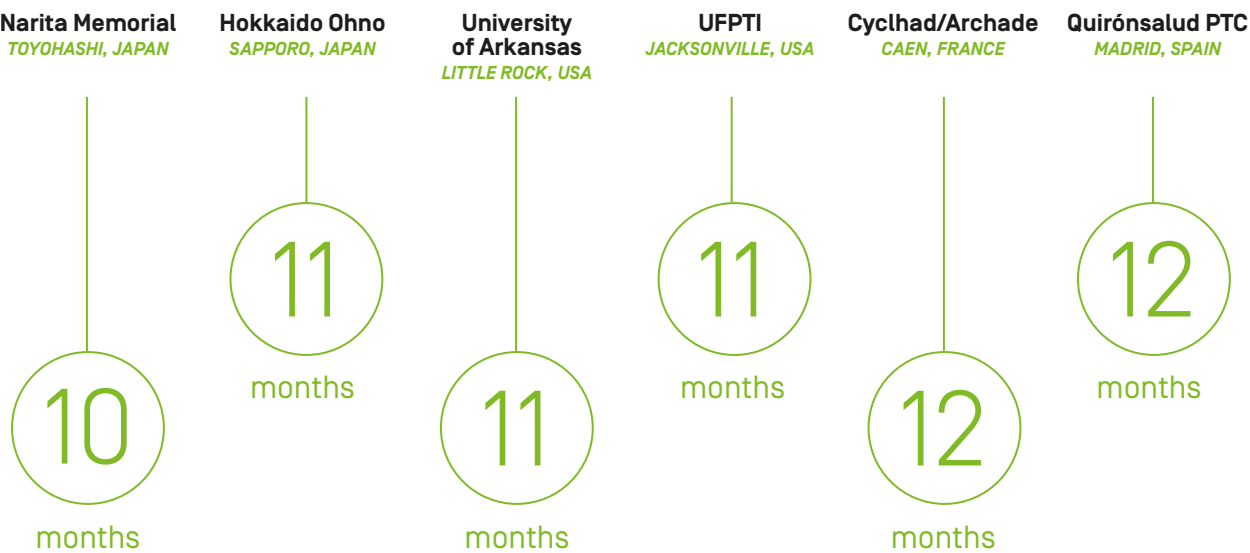
TRACTEBEL


Develop

Once the design and building construction phase has been completed, IBA teams will work closely with you on the next phase, which includes the proton therapy system installation, training, clinical commissioning, and patient ramp-up.

Proton therapy system installation

At IBA, we work to install ProteusONE as quickly as possible. **We have regularly been able to install our systems in 12 months or less.**



IBA moves quickly to perform rigging, installation, and validation testing, working in collaboration with all stakeholders and ensuring all requirements are met. We leverage our experience in different settings and are highly adaptable to achieve a successful, smooth, and on-time installation. Throughout the process, regular meetings are organized by the Project Manager to share our advancement, early results, and data. During that period, we will also start training your staff and prepare for commissioning.



Faster calibration thanks to the integration with IBA Dosimetry

IBA Proton Therapy and IBA Dosimetry are part of the same organization and collaborate closely, which ensures **seamless integration and the best efficiency**. The combination of IBA Dosimetry together with the IBA Proton Therapy equipment offers synergies, resulting in **substantial time and quality gains** during the clinical commissioning part and daily operations.

Calibration and commissioning with only one click are possible with Connect iON. This unique connection allows IBA and its Proteus users to script and automatize the calibration workflow. It simplifies and speeds up systematic tests and tasks while decreasing the risk of error due to manual execution. These scripting capabilities can also be used for any research activities you want to perform.

IBA Dosimetry also streamlined the machine QA process by introducing automated workflows and a unique connection with the IBA Proteus system. This is done through the DOPA [Dosimetry Proton Therapy Alliance] Server that allows the myQA platform to communicate with the IBA Proteus gantry, beam delivery, imaging, and patient positioning systems to **save clicks and prevent user errors**.



We chose to partner with IBA who bring more than 30 years of experience in proton therapy. The collaboration with IBA enabled us to treat our first patient 12 months after the building was ready for the equipment rigging.



THOMAS LANNI JR.

Former President

Corewell Health East Beaumont Troy, Michigan, United States

User training

IBA has developed a user training which provides comprehensive training on the Proteus system including hands-on experience, as well as on-site and remote Application Specialist support so that your clinical team is well prepared and confident to start clinical operations.

The IBA Proteus user training helps your team become familiar and competent with the IBA proton therapy system to operate it in a safe and efficient manner. The goal is that the end-user can confidently prepare and deliver a treatment session. The content of the training is based on the Proteus system clinical user guide.

The IBA Proteus user training is designed for physicists, physicians, therapists, dosimetrists, and other staff who may operate the system in a clinical context.

It is divided into academic classroom, online training, and practical hands-on training, all conducted at the end-user facility. Application Specialist support is provided both on-site and remotely.

In addition, to facilitate the go-live and first patient treatment, IBA also offers the on-site presence of an Application Specialist to support your team with last-minute questions or challenges.



Clinical commissioning support

Clinical commissioning is one of the most critical times in the startup of a proton therapy center. A faster start of clinical operations and an accelerated patient ramp-up have a big impact on the return on investment (ROI) of your project. IBA has developed a commissioning support service to help you start on steady grounds and reduce the clinical commissioning time.

IBA's clinical commissioning support brings three major benefits to your team, resulting in faster and safer treatment of the first patient:



Planning & optimization: IBA leverages its expertise to assist in planning out the entire commissioning schedule based on your available resources. We help combine the right tools and the right skills, which likely leads to a decrease in time of the clinical commissioning process by optimizing the workload. This could lead you to treat your first patient one month earlier on average.



Quality: Data quality is critical during the commissioning period. IBA takes the time to advise your team on data collection techniques, followed by our team reviewing the data and comparing them to IBA's database before it is used to model your treatment planning system. Moreover, thanks to the synergy with IBA Dosimetry, the IBA Application Specialist assists in optimizing the acquisition of data in the most efficient way. This assistance has allowed many IBA clients to save countless weeks and resulted in a direct financial benefit.



Peace of mind: For sites that have little or no experience in proton therapy, IBA's expert support can be a great relief. During your clinical commissioning, the IBA Application Specialist is by your side and gives your team the confidence to move as quickly and safely as possible.

Patient ramp-up

The IBA training courses covering the operation of the system and its clinical applications are designed to ensure a fast system ramp-up. However, patient ramp-up experiences are diverse and depend on the actual clinical staff training, the ability to dedicate part of the staff to proton therapy, but also the access to reimbursement, patient referral, and marketing. Nevertheless, IBA's installed base has experienced some of the fastest ramp-ups in the industry. Some centers in the United States and in France have been able to ramp-up to more than 25 patients daily per room in less than 6 months. A center in Asia has reached 26 patients a day in less than 3 months.

The total number of patients treated per year on a proton therapy system is also highly dependent on the clinical choices of an institution as the disease site and the number of fields will highly affect the time per fraction.



The Texas Center for Proton Therapy enjoyed one of the fastest ramp-ups in proton history. We were able to start treating a lot of patients very quickly. Thanks to IBA, we were able to be committed to our patients.



DR ANDREW K. LEE

Medical Director

Texas Center for Proton Therapy, Irving, United States

Treat

Clinical operations

To ensure smooth clinical operations and system performance, IBA provides **robust on-site and remote support, reliable intelligent maintenance services, optimized spare part management, regular system updates and improvements as well as access to the largest proton therapy community.**

On-site & remote support

The IBA Platinum Service Program has been designed to provide full assistance to our clients, allowing them to focus on clinical activities. As part of this program, IBA ensures full operation and maintenance of the Proteus system guaranteeing the highest performance standards to **achieve maximum uptime.** We make sure adequate resources are permanently available, both on-site and remotely. This includes **a permanent, highly qualified on-site support team**, with experienced and certified proton therapy system engineers and technicians. Our experts work in close collaboration with your staff members.

IBA has also set up a pool of field service engineers across the globe (the Flying Services team) with exceptional expertise in maintaining various subsystems. They can be mobilized at short notice to arrive on site quickly and assist the local team with technical issues requiring additional expertise or resources.

The IBA Technical Support Center, staffed by experienced field engineers and equipped with sophisticated tools for remote access and troubleshooting, is available to provide high-end technical support on a **24/7 basis.**

Our customer support team dedicated to proton therapy is made up of more than 500 experts, spread across 5 continents, striving for **100% uptime.** At all times, your team will be able to focus on the clinical aspects of the care center while IBA experts ensure that your entire proton therapy system runs at top performance, for your peace of mind and helping you achieve your business goals.



Throughout the years, I had the chance to appreciate the great personal values of the IBA team on site. IBA has a great response in terms of quality of treatment, patient safety, and shows a clear need and drive to help patients.



PR JEAN-LOUIS HABRAND

Chief of Radiation Oncology

François Baclesse Cancer Center, Caen, France



Thanks to our partnership with IBA, we have been able to treat more than 6,500 patients in ten years. We have been at capacity since the first year. It has been a fantastic and reliable operation.



DR NANCY P. MENDENHALL

Medical Director & Associate Chair

UF Health Jacksonville Department of Radiation Oncology, Florida, United States

According to IBA market research, product reliability and uptime are the main reasons a client is likely to recommend a proton therapy partner. The top 10 clients who recommend IBA highlight our system's reliability, consistent performance, and maximized uptime.

Intelligent maintenance

IBA has a well-defined preventive maintenance program based on its more than 35 years of experience. This program continues to evolve as we gain additional experience with our growing installed base.

In addition, IBA has created PRIDEx, an integrated, automated monitoring tool connected throughout the proton therapy system providing key data and trends on the system's performance. It enables us to remotely identify system degradations and take proactive action prior to encountering a service-affecting incident.

This tool continuously monitors key signals from the Proteus system, helping to transition the standard preventive maintenance plan into a truly predictive or condition-based maintenance plan. PRIDEx combines the data gathered from various maintenance tools and integrates everything in different reports. The reports allow a faster resolution of the potential issues through increased effectiveness of the on-site team and better remote support. The technical support team has a complete view of the status of our sites worldwide, enhancing their responsiveness when a site is down and increasing their impact by proactively analyzing the data of the whole installed base.

PRIDEx has been designed around three main components: monitoring, analysis, and troubleshooting. The monitoring component is part of the Proteus system and tracks and stores valuable data from software logs and electronics. The analysis component allows for data extraction and trending and enables the automatic triggering of alarms when a concerning trend is detected. The troubleshooting component guides the field engineers with a structured approach to problem analysis. More recently, IBA invested in the Dezide guided troubleshooting technology to reduce troubleshooting time.

IBA also uses a performant Artificial Intelligence-based machine learning model for the most fragile parts to ensure we can replace them when they start to show signs of failure. Today, it is used routinely and has shown successful results in predicting failures and sometimes postponing maintenance by a few weeks.



Spare parts management

The availability of spare parts is crucial to ensure the readiness of the Proteus system. **To minimize downtime, IBA has organized and optimized its spare part availability to avoid bottlenecks when addressing a system defect.** Depending on logistics, delivery times, and usage rates, replacement parts are strategically stored at the client's facility and/or in centralized IBA storage locations with the goal of expediting the delivery to the site as quickly as possible. Through the experience accumulated across our rooms in operation, the spare parts inventory maintained on-site has been adjusted over time. Subsequently, it is rare to encounter a situation when the appropriate part is unavailable on site.

System updates

What sets IBA apart is its commitment to the continuous improvement of our systems and features to offer new expanded possibilities and make proton therapy accessible to all patients who could benefit from it. IBA's Engineering department collaborates closely with IBA's Innovation & Development (I&D) department, with more than 200 engineers and scientists working together to further improve the Proteus platform. These improvements are based, among other things, on the inputs from our worldwide installed base.

Our teams also work on the development of new functionalities and upgrades that integrate the latest technology and the most up-to-date features, ensuring that both new and existing Proteus users can continue benefiting from proton therapy's full clinical potential.

IBA ProteusONE user meeting





Even a system installed in 1997 can be upgraded with features developed today. This a testament to the ingenuity and creativity of the engineers and physicists that work together to make this possible.



DR JAY FLANZ

*Former PTCOG President and Technical Director
Massachusetts General Hospital, Boston, United States*

The Campus community

IBA Campus is the largest community sharing knowledge and experience in proton therapy. Campus offers a wealth of educational resources, allowing all stakeholders to learn about proton therapy and find all the information they need at every stage of their journey. IBA users are at the heart of Campus. They build, contribute, and benefit from this community by sharing with each other.

Campus your proton
therapy community



CLICK OR SCAN THE QR CODE
TO CREATE YOUR ACCOUNT
AND START DISCOVERING CAMPUS



Essential takeaways

- Consider your long-term relationship with a proton therapy partner and evaluate their capability to meet your needs both now and in the future.
- Assess your partner's expertise and experience in various settings, as well as their commitment to innovation and the development of proton therapy.
- Choose a partner who offers consistent support and peace of mind throughout your journey, ensuring smooth and efficient operations.

Proton therapy is a long-term commitment which requires a proven and trusted partner to guide you through the entire 20+ years lifetime. We hope this overview gives you a better understanding of how IBA supports its clients at every step of their proton therapy journey, providing expertise, experience and assistance for project success and peace of mind.

Contact us !



CLICK OR SCAN THE QR CODE
TO CONTACT US!

References

1. Mohan R and Grosshans D. Proton therapy - Present and future. Adv Drug Deliv Rev. 2017 Jan 15;109:26-44. [\[PubMed\]](#)
2. Hu M et al. Proton beam therapy for cancer in the era of precision medicine. J Hematol Oncol. 2018 Dec 12;11(1):136. doi: 10.1186/s13045-018-0683-4. [\[PubMed\]](#)
3. Verma V et al. Quality of Life and Patient-Reported Outcomes Following Proton Radiation Therapy: A Systematic Review. J Natl Cancer Inst. 2018 Apr 1;110(4). [\[PubMed\]](#)



Available resources

This Solution Paper is part of a series highlighting the unique benefits of proton therapy with ProteusONE for cancer centers:



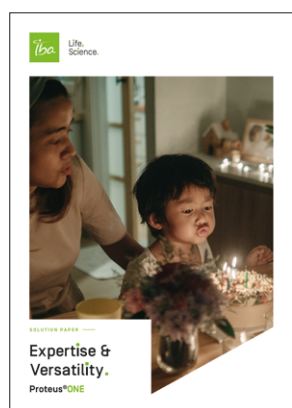
Patient & Staff Experience



Peace of Mind



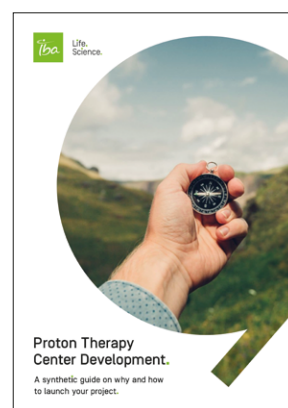
Scalability & Sustainability



Expertise & Versatility



Why Beam Quality Matters



Proton Therapy
Center Development
- Synthetic Guide

Contact us !



CLICK OR SCAN THE QR CODE
TO CONTACT US AND GET
YOUR ADDITIONAL RESOURCES



Visit us online at
www.iba-protontherapy.com

